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e-CODEX

e-Justice Communication via Online Data Exchange

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Description of tested functions and the outcomes

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Abstract:

The main goal of this document is to establish a common protocol for testing. The scope of the testing activity will cover message flows from the national connector of the issuing Member State to the national connector of the receiving Member State.

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List of Abbreviations

Acronym	Explanation
ARHS	Advanced and Reliable Information Systems; the company contracted to support the Trustlib development.
AS	Applicability Statement AS1 ¹ , AS2 ² , AS3 ³ and AS4 ⁴ are a family of protocols specifying how to transport data securely and reliably over the Internet.
ASiC-S Container	A data container holding different data objects and associated signatures within a ZIP file
AT	Austria
DB	Data Base
DE	Germany
ebMS	ebXML Messaging Services
ebXML	Electronic Business using eXtensible Markup Language, commonly known as e-business XML
EC	European Commission
e-CODEX	e-Justice Communication via Online Data Exchange
EDI VAN	EDI ⁵ : Electronic Data Interchange, VAN: Value Added Network
EE	Estonia
eID	Electronic Identity Document
ES	Spain
ETSI	European Telecommunications Standards Institute
EU	European Union
GW	Gateway
GW2GW	One of the testing phases. The tested exchange is established between two gateways (gateway to gateway)
Holodeck	Is a free open-source software for b2b messaging, based on the Oasis specifications for ebXML Messaging version 3 and AS4 profile (http://holodeck-b2b.org)
HTTP	Hypertext Transfer Protocol. Is an application protocol for distributed, collaborative, hypermedia information systems ⁶ .
HTTPS	Hypertext Transfer Protocol Secure is an application protocol for distributed, collaborative, hypermedia information systems.
ICT	Information and Communications Technology
IEEE	Institute of Electrical and Electronic Engineers
LSP	Large Scale Pilot
MD5	Message Digest Algorithm 5. It is a cryptographic function commonly used to check data integrity
MS	EU Member State
PEPPOL	Pan-European Public Procurement Online (http://www.peppol.eu/)

¹AS1 specification, RFC 3335, <http://www.ietf.org/rfc/rfc3335.txt>

² AS2 specification, RFC 4130, <http://www.ietf.org/rfc/rfc4130.txt>

³AS3 specification, RFC 4823, <http://tools.ietf.org/html/rfc4823>

⁴AS4 conformance profile,

<http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/profiles/AS4-profile/v1.0/csprd03/AS4-profile-v1.0-csprd03.odt>

⁵EDI standards include: UN/EDIFACT, ANSI ASC X12, TRADACOMS, ODETTE

⁶ Fielding, Roy T.; Gettys, James; Mogul, Jeffrey C.; Nielsen, Henrik Frystyk; Masinter, Larry; Leach, Paul J.; Berners-Lee (June 1999). "RFC 2616: Hypertext Transfer Protocol – HTTP/1.1"

Acronym	Explanation
P-Mode	Processing Mode
PDF	Portable Document Format. It is a file format to represent documents. PDF file encapsulates a complete description of a fixed-layout flat document
REM	Registered E-mail (ETSI TS 102 640)
SPOCS	Simple Procedures Online for Cross- Border Services (http://www.eu-spocs.eu/)
SSL	Cryptographic protocol that provide communication security over the Internet ⁷ . TLS is the last version of SSL that has been renamed.
"Trust OK"-Token	Signed document that certifies that a message has been generated by an e-CODEX Service Provider
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
WP	Work Package
WP3	WP in charge of pilot and experimenting
WP4	WP in charge of identity and e-signatures
WP5	WP in charge of exchange of documents and data and e-payment

⁷ T. Dierks, E. Rescorla (August 2008). "The Transport Layer Security (TLS) Protocol, Version 1.2"

Executive Summary

The e-CODEX project is a Large Scale Project (LSP) in the domain of e-Justice⁸ that aims to provide citizens, enterprises and legal professionals with an easier access to justice in cross border procedures and to make cross border collaboration of courts and authorities easier and more efficient by creating interoperability of the existing national ICT solutions. For authorities, the project also aims to facilitate and improve the collection of fines. The project will achieve these objectives in a transparent, cost-effective, efficient and sustainable way by using an ICT (Information and Communication Technologies) infrastructure to exchange information across borders. This infrastructure will leverage established technology and existing building blocks, reducing the cost of acquisition, development, testing and deployment for participants.

For the building of such infrastructure building blocks from earlier initiatives as well as international open standards have been used. This strategy allows building upon years of previous experience, reducing the investment in software development and testing.

Testing and the documentation of the testing are important parts of the project. This document is a test plan for the e-CODEX exchange infrastructure derived from the IEEE Standard for Software Test and Documentation (829-1998)⁹. It will serve as guidelines for testing the different components of the solution and also will help the different participants (Member States, European Commission and others) to define their own test plans. This document describes the scope, approach and main testing activities for WP5 software deliverables. The items to be tested, the features to be tested and also the schedule to complete testing are defined following the IEEE standard. Resources and personnel are not being addressed in this document because both are tightly coupled with the national infrastructure. The tests described in this document are black-box tests. Unit tests and component tests are therefore outside the scope of this deliverable.

The main goal of the testing process has been the ease of doing testing. To verify the test results the testers only need to have access to the logs implemented in the generic part of the so-called "e-CODEX connector" and to the logs implemented in the gateway, the databases and the file system of the servers involved that will hold the transferred files (incidentally).

Chapter 2 briefly describes the architecture of the system to be tested. To have a deep knowledge of that architecture it is recommended to read the Deliverable D5.4 "Developed Modules"¹⁰.

Chapter 3 introduces the features that have been tested. These features are technical features that need to be tested by a technical team rather than by end users, as the core e-CODEX infrastructure is a system without a user interface. Any end user interface functionality involved in exchanging information using the e-CODEX infrastructure is provided by business applications which are connected via a national infrastructure to the e-CODEX infrastructure but are not themselves part of the infrastructure. The tests can therefore be reproduced by any Member State or Associated Country, as specific national functionality is not part of the tests. The tests support the functionality currently implemented in the e-CODEX components. For each test, a step-by-step description of the whole testing process is provided. Furthermore, each test defines both pre-conditions and post-conditions. Pre-conditions define conditions that must be met before the test can be run. Post-conditions define conditions that must be true after the test has been run if it has been run successfully.

Chapter 4 describes the overall test scenario. While ultimately all the Member States and Associated Countries participating in e-CODEX will be involved in testing, at the time of writing (May 30 2013),

⁸See also <http://www.e-codex.eu/home.html>

⁹ <https://standards.ieee.org/findstds/standard/829-1998.html>. Released on February 25 2008.

¹⁰ <https://www.iol.nrw.de/bscw/bscw.cgi/2841497>. That deliverable will only be accessible to the e-CODEX consortium

only a subset of participants has conducted the tests defined in this document. This chapter reflects issues encountered and lessons learned in these tests and recommendations for future testing.

Chapter 5 contains the conclusions of the testing process.

The Appendix I consists of a description of the test plan to be conducted from a WP5 perspective; finally the Appendix II has the results of the first testing phase (Gateway2Gateway).

1. Introduction

1.1. Scope and Objective of Deliverable

The goal of this document is to describe how the testing of the e-CODEX infrastructure had been done. Due to the different national systems implemented in each country, this document traces the message flow starting from the issuing Member State national connector to the receiving Member State national connector.

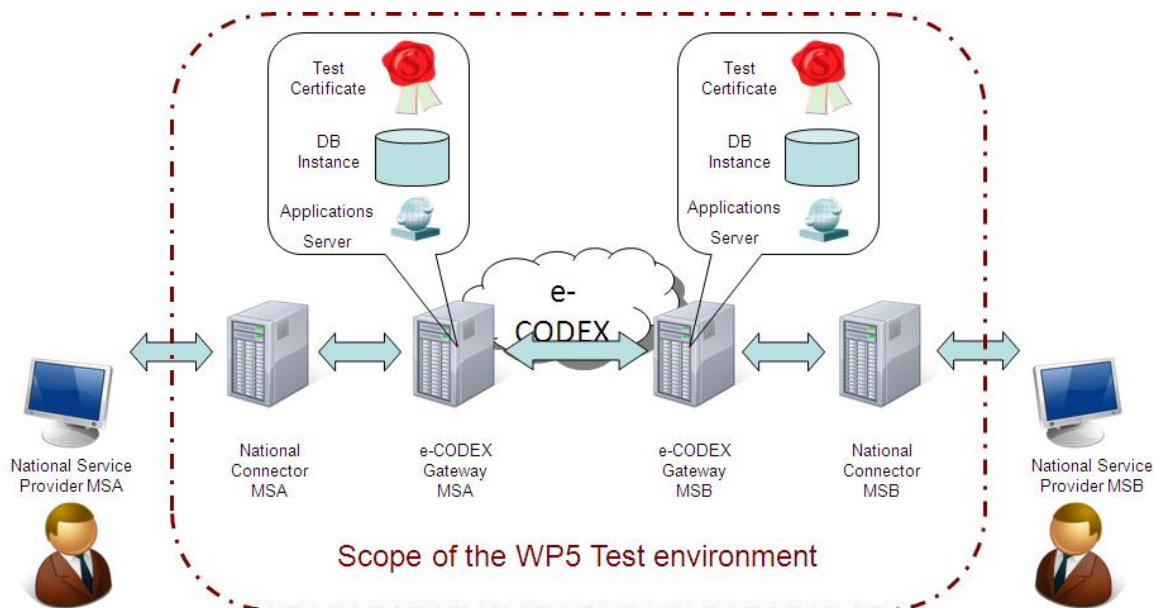


Figure 1: Scope of the testing process

Because of the breadth of the process, and also in order to keep this Deliverable D5.5 simple, most of the tests are described in a tabular format. These tables are provided in Appendix I.

1.2. WP5 General Objectives and Vision

e-CODEX is a Large Scale Project in the domain of e-Justice¹¹ that aims to provide to citizens, enterprises and legal professionals an easier access to justice in cross border procedures and to make cross border collaboration of courts and authorities easier and more efficient by creating interoperability of the existing national ICT solutions.

When structuring the work of the e-CODEX project, various considerations were followed to find an optimal organizational structuring. The project aims to develop the interoperability building blocks for e-Justice services in Europe that address the horizontal issues between Member States and Associated Countries. Furthermore, these building blocks will need to be proven in real e-Justice services in the countries involved. The project organization will thus need to support these goals properly to ensure that they can also be achieved from a managerial perspective.

Based on the initial building block breakdown for the large scale pilot implementation candidates, WP5 aims to deliver the capability route and exchange documents and data enabling European cross-border processes in e-Justice.

¹¹See also <http://www.e-codex.eu/home.html>

1.3. Relations to Internal e-CODEX Environment

The goal of this document is to serve as a guide for the testing process of e-CODEX infrastructure. Some of the features that will be tested have been provided by different Work Packages, for instance, Work Package 4 has supplied the library that creates the ASiC-S container and creates and verifies the “Trust OK”-Token. Work Package 3 has defined the underlying business processes of the judicial proceedings considered within e-CODEX and also inspired the way the testing phase will be conducted. WP6 has defined the content of the documents that e-CODEX transports in an agnostic way.

1.4. Relations to External e-CODEX Environment

WP5 has a strong relation to all other LSPs, especially to SPOCS and PEPPOL with regards to the transport infrastructure developed within these projects. Others sources of inspiration comes from standard organizations like OASIS (ebMS) and ETSI REM (Evidences). A private company has also been involved in the cooperation (ARHS), which was subcontracted to support the development of a library that permits the signature of documents, ASiC-S creation, generation of the “Trust OK-Token” and the security report.

1.5. Quality Management

The participants are all work package partners plus the External Quality Manager. Once the final draft has been accepted by all stakeholders v1.0 is delivered to the European Commission.

The processing of all review comments is documented in the “Comment Disposition Log”, which lists the review comments line by line including a statement how the respective review comment has been processed. The inspection report is published together with the update document of D5.5.

1.6. Risk Management

The risks as identified in the course of the creation of deliverable D5.5 and its probability and possible impact are as follows:

ID	Description	Probability	Impact	Response	Owner
1	The MS cannot use the SW modules due to MS specific requirements or restrictions.	Low	High	Reduce	WP5, All piloting MSs
2	The MS cannot provide enough resources to conduct the tests	Medium	High	Ask for foreign support	All testing MSs
3	Multilateral tests cannot be conducted because of scheduling difficulties	Medium	High	Schedule	All testing MSs

Table 1: Risk List

1.7. Structure of the Document

The document is structured as follows:

Chapter	Description
Executive Summary	Presents the document and describes the work done
1. Introduction	
2. Test Items	Describe the architecture of the system in order to explain the test process
3. Features to be Tested	Description of the step-by-step test process
4. Outcomes of the test Executed	A short description of the test scenario, participants and how to report the results
5. Conclusions	A summary of the conclusions
Appendixes	References, proposed test plan from a WP5 perspective and results of the Gateway2Gateway test phase

Table 2: Structure of the Document

2. Test Items

The system has three main components:

- National System: the system responsible for the interaction with the user. It's the origin of the message flow.
- National connector: the system that transforms the XML content of the message from the national format to the e-CODEX format. Also generates the evidences and the security report. That report confirms that the signature has been verified.
- National gateway: it's the common infrastructure for the ebMS message exchange.

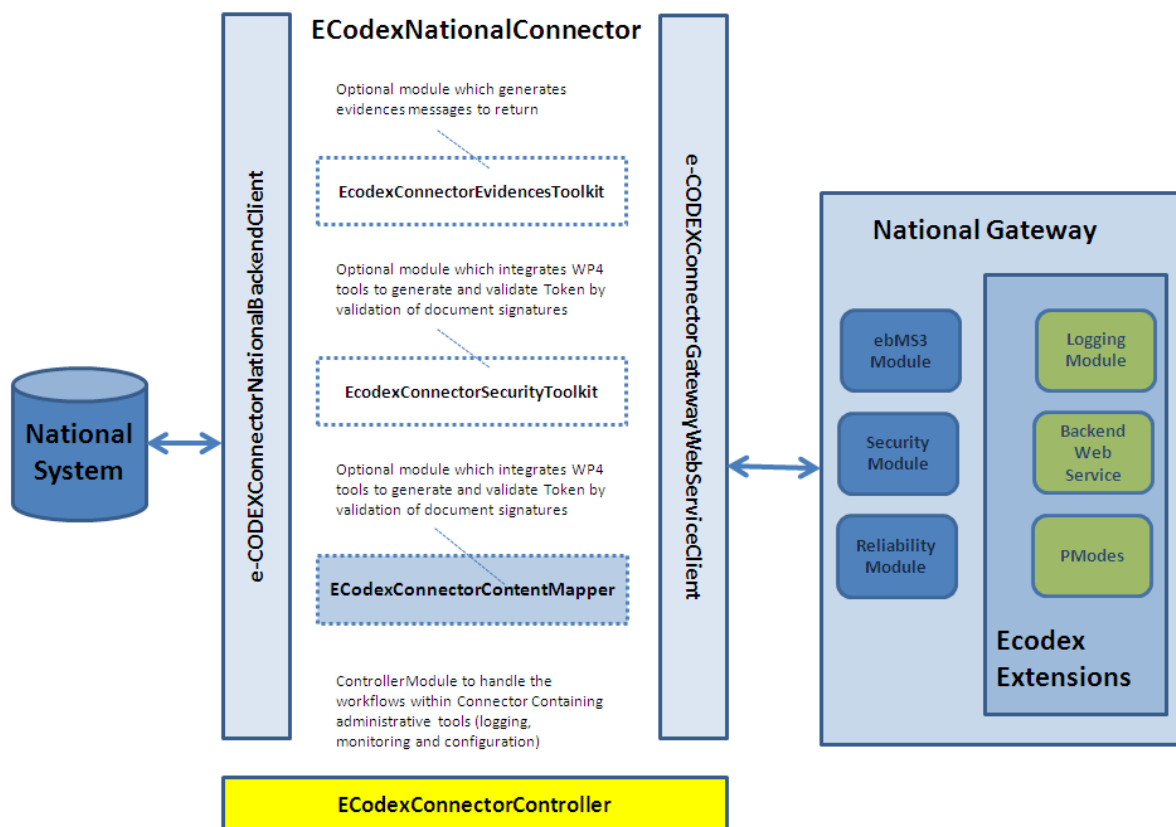


Figure 2: Modules architecture

The national systems are at the origin of the process, but (because they are specific applications) they are not considered in the description of the testing process.

Some Member States may choose to not use the described infrastructure because they own or develop compatible ones. This test plan is focused on the test of the solution developed by the e-CODEX project.

This test plan focuses on the e-CODEX specific modules, like the EvidencesToolkit, the SecurityToolkit, the Logging Module, the Backend Web Service, the data base container and the file system that stores (at least at the gateway) temporarily the message files.

3. Features to be Tested

Because the e-CODEX infrastructure is a transport solution without user interface and not a case management system add-on, the testing has been divided into steps rather than into testable features. The feature to be tested for each step is “process the message”.

3.1. Restrictions

Due to the state of the development some restrictions affect the testing process:

- Reliability is not implemented yet
- Attachment encryption is not supported yet but the messages are sent through an SSL tunnel
- Message size restriction has been implemented without uniformity (different values)

3.2. Preconditions

The preconditions of this test plan are applicable to all the steps described.

These preconditions are:

- National System A and B running
- Gateway A and B running
- National connector A and B running
- Test document in PDF and XML format
- P-Mode and security-config files distributed by the WP5 installed in both gateways (A and B)
- Certificates for transport signature and encryption as well as SSL certificates installed in national connector A and B and in gateway A and B too

3.3. Post conditions

If the test has been conducted from the first to the last step successfully, the testing team is able to check that:

- Message has been received at national system B
- Test document is correct. This will require a binary comparison between the test document transferred through e-CODEX and a different transmission method (e-mail, for instance)
- All the positive Evidences (SUBMISSION_ACCEPTANCE, RELAY_REMMD_ACCEPTANCE, DELIVERY and RETRIEVAL) have been sent and received. The SUBMISSION_ACCEPTANCE and RELAY_REMMD_ACCEPTANCE evidences are generated by the national connector itself. The DELIVERY and RETRIEVAL evidences may be generated also by the national connector (upon reception of a corresponding evidence from the national system) or the national system itself, depending on the implementation
- No message file is present in the file system neither in any national connector nor in any gateway
- Log entries remain in the log database at both gateways and national connectors

3.4. Test Items

Obviously, the target is to transfer a message from national system A to national system B, but due to the intermediate systems involved, a step-by-step process is applied ensuring an easier check of these stages.

The following tables describe the different steps in the testing process.

<i>Step</i>	1		
<i>Scenario</i>	Sending of test document from national system A to connector A		
<i>Comments</i>			
<i>Participants</i>	MS A		
<i>Flow</i>	<i>Description</i>	<i>Expected Results</i>	<i>Checks</i>
Main	National system A and national connector A are up and running	Log entry in the national connector A log DB	<ul style="list-style-type: none"> • Message stored in national connector A DB • Log entry available in national connector A log DB • No exceptions logged in national connector A application server log
Error Condition 1	National connector A not available	Exception in national connector A application server log	Exception in national connector A application server log
Error Condition 2	National connector A cannot process the message or the document	<ul style="list-style-type: none"> • Log entry available in national connector A log DB • Evidence Submission_Rejection received by the national system A 	<ul style="list-style-type: none"> • Log entry available in national connector A log DB • Only message header is stored in the national connector A DB • Hash of the main document in PDF format and signed by the national connector A signature certificate stored in the national connector A DB. The used algorithm is MD5 • Evidence Submission_Rejection : <ul style="list-style-type: none"> ○ Created with national message Id ○ Contains the hash of the main document in PDF format and signed by the national connector A signature certificate. The used algorithm is MD5 ○ Evidence received at national system A with correct national message Id

<i>Step</i>	2		
<i>Scenario</i>	Forwarding message from the national connector A to the gateway A		
<i>Comments</i>			
<i>Participants</i>	MS A		
<i>Flow</i>	<i>Description</i>	<i>Expected Results</i>	<i>Checks</i>
Main	National system A, national connector A and gateway A are up and running	<ul style="list-style-type: none"> Log entry in the national connector A log DB Log entry in the gateway A log DB Received Submission_Acceptance Evidence at national system A 	<ul style="list-style-type: none"> Periodic timer jobs are running Message stored correctly in the gateway A DB Log entry available in gateway A log DB Log entry in the national connector A log DB No exceptions logged in gateway A application server log Evidence Submission_Acceptance: <ul style="list-style-type: none"> Created with national message Id Contains the hash of the main document in PDF format and signed by the national connector A signature certificate. The used algorithm is MD5 Evidence received at national system A with correct national message Id
Error Condition 1	gateway A not available	<ul style="list-style-type: none"> Log entry in the national connector A log DB Received Submission_Rejection Evidence at national system A 	<ul style="list-style-type: none"> Log entry in the national connector A log DB Received Submission_Rejection Evidence at national system A
Error Condition 2	Gateway A cannot deduce the necessary	<ul style="list-style-type: none"> Log entry in the national connector A 	<ul style="list-style-type: none"> Log entry in the national connector A log DB Received

	PMode	<p>gog DB</p> <ul style="list-style-type: none"> Received Submission_Rejection Evidence at national system A 	<p>Submission_Rejection Evidence at national system A</p>
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<i>Step</i>	3		
<i>Scenario</i>	Message forwarded to gateway B		
<i>Comments</i>			
<i>Participants</i>	MS A, MS B		
<i>Flow</i>	<i>Description</i>	<i>Expected Results</i>	<i>Checks</i>
Main	National system A, national connector A, gateway A and gateway B are up and running	<ul style="list-style-type: none"> Log entry in the gateway A log DB Log entry in the gateway B log DB 	<ul style="list-style-type: none"> Message stored in gateway B DB Log entry available in gateway A log DB Log entry available in gateway B log DB No exceptions logged neither in gateway A nor in gateway B application server logs Message was sent signed with the signing certificate of gateway A
Error Condition 1	Gateway B not available	<ul style="list-style-type: none"> Log entry in gateway A log DB Evidence Relay_REMMD_Rejection received at national system A 	<ul style="list-style-type: none"> Only message header stored in national connector A DB Only hash of the main document in PDF format stored in national connector A DB. The used algorithm is MD5 Log entry in the national connector A log DB Log entry in gateway A log DB Evidence Relay_REMMD_Rejection (generated at national connector A, because of timer exceeded): <ul style="list-style-type: none"> Created with national message Id Contains the hash of the main document in PDF format and signed by the national connector A signature certificate. The used algorithm is MD5 Evidence received at national system A with correct national message Id

Step	4		
Scenario	Message forwarded to national connector B		
Comments			
Participants	MS A, MS B		
Flow	Description	Expected Results	Checks
Main	National system A, national connector A, gateway A, gateway B and national connector B are up and running	<ul style="list-style-type: none"> • Log entry in the gateway B log DB • Log entry in the national connector B log DB • Evidence Relay_REMMD_Acceptance received at gateway A, national connector A and national system A 	<ul style="list-style-type: none"> • Message stored in national connector B DB • Log entry available in national connector B log DB • Log entry available in gateway B log DB • No exceptions logged neither in gateway B nor in national connector B application server logs • Evidence Relay_REMMD_Acceptance: <ul style="list-style-type: none"> ○ Created including original national message Id ○ Contains the hash of the main document in PDF format and signed by the national connector B signature certificate. The used algorithm is MD5 ○ Sent back to gateway A (signed with gateway B signing certificate) ○ Hash of the main document in PDF format verified in connector A. The used algorithm for hash calculation is MD5 ○ Evidence received at national system A with correct national message Id ○ Stored in DB and log entries as for normal messages

<p>Error Condition 1</p>	<p>National connector B not available</p>	<ul style="list-style-type: none"> • Log entry in gateway B DB • Evidence Relay_REMMD_Rejection received at national system A 	<ul style="list-style-type: none"> • Only message header stored in national connector A DB • Message content deleted in gateway B file system • Hash of the main document in PDF format and signed by the national connector B signature certificate stored in gateway B DB. The used algorithm is MD5 • Log entry available in gateway B DB • Evidence Relay_REMMD_Rejection generated at national connector A, because timer exceeded: <ul style="list-style-type: none"> ○ Created with national message Id ○ Contains the hash of the main document in PDF format and signed by the national connector A signature certificate. The used algorithm is MD5 ○ Evidence received at national system A with correct national message Id
<p>Error Condition 2</p>	<p>National connector B cannot process the message or the document</p>	<ul style="list-style-type: none"> • Log entry available in national connector A log DB • Log entry available in national connector B log DB • Evidence Non_Delivery received at national system A 	<ul style="list-style-type: none"> • Only message header is stored in the national connector A and B DB • Message content deleted from the gateway B file system • Log entry available in national connector A and B DB log • Evidence Non_Delivery : <ul style="list-style-type: none"> ○ Created including original national message Id ○ Contains the hash of the main document in PDF format and signed by the national connector A signature certificate. The used algorithm is

			<p>MD5</p> <ul style="list-style-type: none">○ Sent back to gateway A (signed with gateway B signing certificate)○ Hash of the main document in PDF format verified in connector A. The used algorithm for hash calculation is MD5○ Evidence received by the national system A with correct national message Id○ Stored in DB and log entries as for normal messages
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<i>Step</i>	5		
<i>Scenario</i>	Message forwarded to national system B		
<i>Comments</i>			
<i>Participants</i>	MS A, MS B		
<i>Flow</i>	<i>Description</i>	<i>Expected Results</i>	<i>Checks</i>
Main	National system A, national connector A, gateway A, gateway B, national connector B and national system B are up and running	<ul style="list-style-type: none"> • Log entry in the national connector B log DB • Evidence Delivery received at gateway A, national connector A and national system A 	<ul style="list-style-type: none"> • Message received at national system B • Receiving confirmation from national system B (OPTIONAL) • Log entry available at national connector B DB log • No exceptions logged in national connector B application server log • Evidence Delivery: <ul style="list-style-type: none"> ○ Created including original national message Id ○ Contains the hash of the main document in PDF format and signed by the national connector A signature certificate. The used algorithm is MD5 ○ Sent back to gateway A (signed with gateway B signing certificate) ○ Hash of the main document in PDF format verified in connector A. The used algorithm for hash calculation is MD5 ○ Evidence received at national system A with correct national message Id ○ Stored in DB and log entries as for normal messages

Error Condition 1	National system B not available	<ul style="list-style-type: none"> • Log entry in national connector B log DB • Evidence Non_Delivery received at national system A 	<ul style="list-style-type: none"> • Only message header is stored in the national connector A and B DB • Message content deleted from the gateway B file system • Log entry available in national connector A and B DB log • Evidence Non_Delivery : <ul style="list-style-type: none"> ○ Created including original national message Id ○ Contains the hash of the main document in PDF format and signed by the national connector A signature certificate. The used algorithm is MD5 ○ Sent back to gateway A (signed with gateway B signing certificate) ○ Hash of the main document in PDF format verified in connector A. The used algorithm for hash calculation is MD5 ○ Evidence received by the national system A with correct national message Id ○ Stored in DB and log entries as for normal messages
Error condition 2	Delivery confirmation not received	<ul style="list-style-type: none"> • Log entry in national connector B log DB • Evidence Non_Delivery received at national system A 	<ul style="list-style-type: none"> • Only message header is stored in the national connector A and B DB • Message content deleted from the gateway B file system • Hash of the main document in PDF format stored in gateway DB. The used algorithm is MD5 • Log entry available in national connector A and B

			<p>log DB</p> <ul style="list-style-type: none"> • Evidence Non_Delivery: <ul style="list-style-type: none"> ○ Created including original national message Id ○ Contains the hash of the main document in PDF format and signed by the national connector A signature certificate. The used algorithm is MD5 ○ Sent back to gateway A (signed with gateway B signing certificate) ○ Hash of the main document in PDF verified in national connector A. The used algorithm for hash calculation is MD5 ○ Evidence received by the national system A with correct national message Id ○ Stored in DB and log entries as for normal messages
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<i>Step</i>	6		
<i>Scenario</i>	Message received at the end user/application		
<i>Comments</i>			
<i>Participants</i>	MS A, MS B		
<i>Flow</i>	<i>Description</i>	<i>Expected Results</i>	<i>Checks</i>
Main	National system A, national connector A, gateway A, gateway B, national connector B and national system B are up and running	<ul style="list-style-type: none"> • Log entry in the national B connector log DB • Evidence Retrieval received at gateway A, national connector A and national system A • No message content available in the national connector A and B and gateway A and B file system 	<ul style="list-style-type: none"> • Receiving retrieval information from national system B • Log entry available at national connector B DB log • No exceptions logged in national connector B application server log • Evidence Retrieval: <ul style="list-style-type: none"> ○ Created including original national message Id ○ Contains the hash of the main document in PDF format and signed by the national connector A signature certificate. The used algorithm is MD5 ○ Sent back to gateway A (signed with gateway B signing certificate) ○ Hash of the main document in PDF format verified in connector A. The used algorithm for hash calculation is MD5 ○ Evidence received at national System A with correct national message Id ○ Stored in DB and log entries as for normal messages • Message content deleted from both gateways file system

<p>Error Condition 1</p>	<p>No message retrieval evidence received</p>	<ul style="list-style-type: none"> • Log entry in national connector B log DB • Evidence Non_Retrieval received at national system A 	<ul style="list-style-type: none"> • Only message header is stored in the national connector A and B DB • Message content deleted from the gateway B file system • Log entry available in national connector A and B DB log • Evidence Non_Retrieval: <ul style="list-style-type: none"> ○ Created including original national message Id ○ Contains the hash of the main document in PDF format and signed by the national connector A signature certificate. The used algorithm is MD5 ○ Sent back to gateway A (signed with gateway B signing certificate) ○ Hash of the main document in PDF format verified in connector A. The used algorithm for hash calculation is MD5 ○ Evidence received by the national system A with correct national message Id ○ Stored in DB and log entries as for normal messages
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4. Outcomes of the Tests Executed

4.1. Scenario

In the previous chapter the whole testing process has been described, starting from the basic connectivity tests (step1, GW2GW) and ending at the user level (step 6, message received at the end user/application).

Prior to the Go-Live phase, the realization of connector to connector tests have been planned.

4.2. Participants

The participating Member States on the described test phase have been Austria, Estonia, Germany, Italy and Spain. The troubleshooting of unforeseen issues was easier because these countries are involved very actively since the beginning of the activities in WP5, this must be taken into account in order to offer (if required) a sufficient level of support to the participating Member States.

The profile of the testers is very technical, and this has a great impact on the resolution of issues.

4.3. Reporting

During the initial tests no event tracking tool was used in order to manage the events. In so far the usual methods of informal communication (e-mail, telephone conferences, file based exchange, etc.) have been used intensively.

After this phase, the situation has changed substantially with the use of the JIRA tool, it is expected that it will become a standard practice. Only components related to release management are still missing in the JIRA workflow.

WP3 proposed a form to be fulfilled in order to consolidate the results of the tests. Those documents have been incorporated in this deliverable in Appendix II.

5. Conclusions

The GW2GW testing phase that has been conducted during January and February 2013 has been a very valuable experience. Because of that, it has been possible to assess the necessary efforts that the Member States will have to do for the deployment of the required infrastructure.

The implementation of the national connector and the gateway will be affected by the corporate security policies and even the system deployment policy could be concerned because of software requirements of the gateway itself. The exchange of configuration information (P-Mode files, endpoints, security-config file, certificates and so on) will require to be clearly defined.

Furthermore, those tests have also provided an exact feedback about the maturity of the solution deployed.

Both gateway and national connector, will be evolved, as it has been planned, nevertheless the project is evolving in the correct way.

The principal conclusion obtained was that all of the participant countries were able to conduct successful tests.

The Excel sheets collected, inform about the final status of the tests but not about the process. Most of the conclusions have been obtained through the information exchanged in several conference calls, the Vienna (January the 10th, 2013) and Madrid (February the 28th, 2013) meetings and quite a lot of e-mails.

In order to conduct the tests flawlessly, the MSs participating in a multinational scenario must take into account that a detailed, step-by-step schedule will help

- (1) reducing the probabilities of failure,
- (2) identifying that a target has been reached or not and
- (3) detail how to advance to the next stage.

ID	Description	Risk	Response
1	The deployment of a service that accepts connections from Internet will require the collaboration between different departments (security, communications, development)	Effort and complexity underestimation	Involve the different areas from the beginning
2	In order to implement the encryption of the transport channel, it's necessary to use https as transport protocol in a production environment	Effort underestimation	Planning
		Lack of coordination between MSs	Central repository of certificates, and configurations
3	The realization of multilateral test requires detailed planning	If the planning is not realistic the testing process will be slow and time consuming	Schedule
4	In order to support the piloting phase the guidance for the newcomers must be assessed	Piloting phase planning will be delayed	Assign resources

5	The use of Configuration Management tools must be increased	The intensive use of e-mail	Adopt e-mail communication just for administrative tasks
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I. References

Deliverable D3.3 Documented System Requirements and Specifications

Deliverable D4.2_v1.1 Concept for Implementation of WP4, chapters 2.2 and 3.1

Deliverable D4.3_v0.5 Developed Modules and Building Blocks, chapters 2.2 and 2.3

Deliverable D5.3 Concept of Implementation

Deliverable D5.3_v1.2_DE Concept of Implementation, chapter 3.5 Usage of ETSI REM evidence within e-CODEX

Deliverable D5.4 Developed Modules

Deliverable D5.4_v1.0 Developed Modules, chapter 3 SW Module Generic Connector Framework

Deliverable D7.3 High Level Architecture Definition

IEEE Standard for Software Test and Documentation (829-1998)

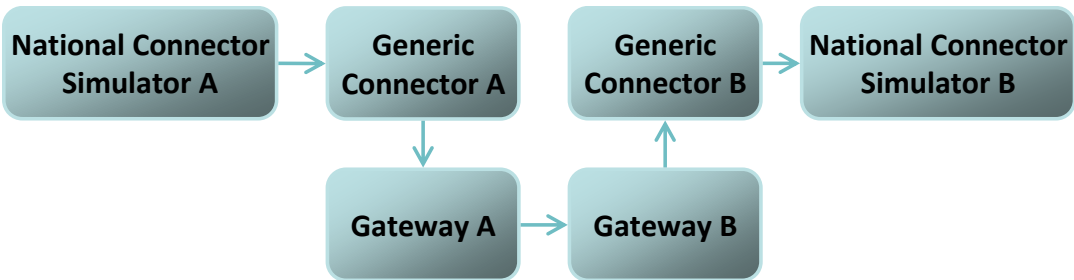
Appendix I – Test Plan from WP5 perspective

I.1 Subject

This test plan is about black box integration testing of the connectors. The generic connectors host the security library which creates the “Trust-Ok”-Token and the ASiC-S container and provide delivery evidences according to the ETSI REM standard.

The test plan is divided into several tests. It does not contain, nor replace unit tests of individual units of source code. Each test is tied to at least one artefact or behaviour that can be observed by the tester. Internal operations of the connector that cannot be observed are not covered by this black box test plan.

I.2 Basic Scenario



The test plan scenario is sending a message from one National Connector Simulator (A) to another National Connector Simulator (B) with two connectors (A and B) in between. The four corner model requires two gateways (A and B) between the connectors. This test plan does not include any gateway or unit tests.

The perspective of this test plan is either reception of the message in conjunction with positive evidences or one negative evidence with preceding positive evidences in conjunction with non-delivery of the message in case of any expected error.

I.3 The National Connector Simulator

The National Connector Simulators simulate the behaviour of the national connectors which are specific to the member states. The National Connector Simulators provide basic sending and receiving facilities without an actual binding to a national system (like EGVP in Germany).

The tester uses the National Connector Simulator A to send business messages (test resources) through the generic connectors which itself uses the gateways for transportation. The National Connector Simulator accepts messages to send in a specific folder and also saves transferred messages in a specific folder.

The ECodexNationalImplementationExample project contains the National Connector Simulator.

I.4 Composition



The test plan consists of several tests and each test consists of several test cases.

- A test case executes successfully if it produces the expected results. Otherwise it fails.

- A test executes successfully if all its test cases execute successfully. A test fails as soon as at least one of its test cases fails.
- The test plan executes successfully if all tests execute successfully.

A test can be executed if its pre-requisites are fulfilled.

I.5 Findings

The observations of each test case shall be described in the “Findings” column. If an unexpected error occurs or the Connector’s behaviour does not correspond to the requirements, the erroneous behaviour shall be described here.

For each test case, the findings shall be evaluated using the pre-defined failure levels. On success, the failure level is N/A (no failure). Based on this assessment, the “Status against target” shall be determined as High, Medium or Low.

1.7 Test Plan Contents

This section contains a general description of the different test subjects.

Test Id	Test name	Test subject	Program	Test coverage	Test created	Step created	Editor	Tester
		Connector A to Connector B test						
-	-	Precondition / starting point	National Connector Simulator A	Store a (signed or unsigned) PDF business document in the send folder of the national connector simulator A.				
001	Message submission	ECodexConnectorNationalBackendClient	Generic Connector A	Acceptance of a business message from the national connector simulator A				
		ECodexConnectorContentMapper	Generic Connector A	Map national XML to international e-CODEX format.				
		ECodexConnectorSecurityToolkit	Generic Connector A	Creation of the Trust-Ok-Token and the ASiC-S container				
		ECodexConnectorGatewayWebserviceClient	Generic Connector A	Creation of the ebMS3 user message and submission to gateway A				
		SubmissionAcceptanceRejection evidence	Generic Connector A	Creation and forwarding of a SubmissionAcceptanceRejection evidence to the national connector simulator A				
		Gateway A						
		Gateway B						
002	Message relay	ECodexConnectorGatewayWebserviceClient	Generic Connector B	Downloading of business message pending in the gateway B				
		ECodexConnectorSecurityToolkit	Generic Connector B	Validate Trust-Ok-Token; check ASiC-S container signature; check certificate				
		ECodexConnectorContentMapper	Generic Connector B	Map international e-CODEX XML to national format.				
		RelayToREMMDAcceptanceRejection evidence	Generic Connector B	Creation and forwarding of a RelayToREMMDAcceptanceEvidence				
003	Message delivery	ECodexConnectorNationalBackendClient	Generic Connector B	Delivery of the message to the national connector simulator B				
		Postcondition / final point (1 of 2)	National Connector Simulator B	Storage of the PDF business document in the receive folder of the national connector simulator B if all positive tests succeed.				
		ECodexConnectorNationalBackendClient	Generic Connector B	Request of message delivery confirmation				
		DeliveryNonDeliveryToRecipient evidence	Generic Connector B	Creation and forwarding of a DeliveryNonDeliveryToRecipient evidence to the national connector simulator A				
004	Message retrieval	ECodexConnectorNationalBackendClient	Generic Connector B	Request of message reception confirmation				
		RetrievalNonRetrievalByRecipient evidence	Generic Connector B	Creation and forwarding of a RetrievalNonRetrievalByRecipient evidence to the national connector simulator A				
			Gateway B					
		Gateway A						
005	Evidence message failure	ECodexConnectorGatewayWebserviceClient	Generic Connector A	Creation and forwarding of a RelayToREMMDAcceptanceRejection evidence to the national connector simulator A if downloading of the RelayToREMMDAcceptanceRejection evidence fails. • Under discussion: The requirements may be updated to expect a RelayToREMMDFailure evidence from the generic connector A with the EventCode "DeliveryExpiration" instead of a RelayToREMMDAcceptanceRejection evidence.				
		RelayToREMMDAcceptanceRejection evidence	Generic Connector A	Creation and forwarding of a RelayToREMMDAcceptanceRejection evidence to the national connector simulator A if no RelayToREMMDAcceptanceRejection evidence has been received timely. • Under discussion: The requirements may be updated to expect a RelayToREMMDFailure evidence from the generic connector A with the EventCode "DeliveryExpiration" instead of a RelayToREMMDAcceptanceRejection evidence.				
-	-	Postcondition / final point (2 of 2)	National Connector Simulator A	All positive evidences or one negative evidence and preceding positive evidences in the receive folder of the national connector simulator A.				

Legend: sending side A receiving side B

I.7.1 Test 01: Message submission

Test ID	Test name			Testcase	Testfiles		Failure level				
001	Message submission			Case 1	Any EPO form, A to G		description		level		
				Case 2	Any EPO form, A to G		discrepancy from requirements leads to data loss, program crash or has other serious consequences		5		
Information	Execution frequency	once per test case execution		Case 3	Any other form		discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)		4		
	Involved test persons			Case 4	Any EPO form, A to G		discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)		3		
	Test leader	WPS		Case 5	Any EPO form, A to G		discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)		2		
							slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)		1		
Pre-requisites	National connector simulator A (sender) and B (receiver) are running.								N/A		
Goal	"Acceptance" or "Rejection" and sends it back to the original sender.										
Level of satisfaction											
Description Test step by step											
N°	Preliminary information				Execution						
Test cases	Description test	Expected result / Quality target	Requirement specified in	Name tester	Date	Execution Valid / Invalid	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>	
Case 1	This is a positive test case. • Check the the generic connector behavior in case the gateway A accepts a message from connector A.	• One SubmissionAcceptanceRejection evidence with the EventCode "Acceptance" in the receive folder of the national connector simulator A.	• D5.3, chapter 3.5.1 Evidence Types								
Case 2	This is a negative test case. • Check the generic connector behavior in case the generic connector A fails to download messages from national connector simulator A.	• ECodexConnectorNationalBackendClientException at Generic Connector A • Termination of the message sending process	• D5.4, chapter 3.2.2 e-Codex Connector National Backend Client								
Case 3	This is a negative test case. • Check the generic connector behavior in case the content of the business message fails to transform (if necessary) from the national to the international format.	• One SubmissionAcceptanceRejection evidence with the EventCode "Rejection" in the receive folder of national connector simulator A. • ECodexConnectorContentMapperException at Generic Connector A • Termination of the message sending process	• D5.3, chapter 3.5.1 Evidence Types								
Case 4	This is a negative test case. • Check the generic connector behavior in case of any failure during creation of the Trust-Ok-Token or the ASIC-S container when using the security toolkit. • This can be simulated by removing access to the keystore	• One SubmissionAcceptanceRejection evidence with the EventCode "Rejection" in the receive folder of the national connector simulator A. • ECodexConnectorSecurityException at Generic Connector A • Termination of the message sending process	• D5.3, chapter 3.5.1 Evidence Types								
Case 5	This is a negative test case. • Check the generic connector behavior in case of any failure during creation of the ebMS3 user message or submission to gateway A. • This can be simulated by stopping the gateway A so that the generic connector cannot connect to it.	• On SubmissionAcceptanceRejection evidence with the EventCode "Rejection" in the receive folder of the national connector simulator A. • ECodexConnectorGatewayWebserviceClientException at Generic Connector A • Termination of the message sending process	• D5.3, chapter 3.5.1 Evidence Types								

1.7.2 Test 02: Message relay

Test ID	Test name	Testcase	Testfiles	Failure level														
002	Message relay	Case 1	Any EPO form, A to G	<table border="1"> <thead> <tr> <th>description</th> <th>level</th> </tr> </thead> <tbody> <tr> <td>discrepancy from requirements leads to data loss, program crash or has other serious consequences</td> <td>5</td> </tr> <tr> <td>discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)</td> <td>4</td> </tr> <tr> <td>discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)</td> <td>3</td> </tr> <tr> <td>discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)</td> <td>2</td> </tr> <tr> <td>slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)</td> <td>1</td> </tr> <tr> <td>No failure</td> <td>N/A</td> </tr> </tbody> </table>	description	level	discrepancy from requirements leads to data loss, program crash or has other serious consequences	5	discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4	discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3	discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2	slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1	No failure	N/A
description	level																	
discrepancy from requirements leads to data loss, program crash or has other serious consequences	5																	
discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4																	
discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3																	
discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2																	
slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1																	
No failure	N/A																	
Information	<table border="1"> <tr> <td>Execution frequency</td> <td>once per test case execution</td> </tr> <tr> <td>Involved test persons</td> <td></td> </tr> <tr> <td>Test leader</td> <td>WPS</td> </tr> </table>	Execution frequency	once per test case execution	Involved test persons		Test leader	WPS	Case 2	Any EPO form, A to G									
Execution frequency	once per test case execution																	
Involved test persons																		
Test leader	WPS																	
		Case 3	Any EPO form, A to G															
		Case 4	Any EPO form, A to G															
Pre-requisites	The positive test case (case 1) of Test 001 has been successfully executed (no failure, Failure level = N/A).			No failure														
Goal	RelayToREMMDAcceptanceRejection evidence with EventCode "Acceptance" or "Rejection" or one																	
Level of satisfaction																		
Description Test step by step																		
N°	Preliminary information			Execution														
Test cases	Description test	Expected result / Quality target	Requirement specified in	Name tester	Date	Execution Valid / Invalid	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>								
Case 1	This is a positive test case. • Check the generic connector behavior in case of successful forwarding a message via the gateways to the generic connector B.	• One RelayToREMMDAcceptanceRejection evidence with the EventCode "Acceptance" in the receive folder of national connector simulator A.	• D5.3, chapter 3.5.1 Evidence Types															
Case 2	This is a negative test case. • Check the generic connector behavior in case the generic connector B fails to download the message from gateway B. • The relay timeout of the Generic Connector A can be configured in the connector.properties file of the National Connector Simulator A.	• ECodeXConnectorGatewayWebserviceClientException at Generic Connector B • Termination of the message sending process • One RelayToREMMDAcceptanceRejection evidence with the EventCode "Rejection" in the receive folder of the national connector simulator A after the relay timeout at the generic connector A expires. • <i>Under discussion: The requirements may be updated to expect a RelayToREMMDFailure evidence from the generic connector A with the EventCode "DeliveryExpiration" instead of a RelayToREMMDAcceptanceRejection evidence.</i>	• D5.3, chapter 3.5.1 Evidence Types															
Case 3	This is a negative test case. • Check the generic connector behavior in case the content of the business message fails to transform (if necessary) from the e-CODEX (international) XML to the national format. • This can be simulated by configuring the national connector simulator B to use a transformation strategy that fails, e.g. using an invalid XML stylesheet.	• One RelayToREMMDAcceptanceRejection evidence with the EventCode "Rejection" in the receive folder of the national connector simulator A. • ECodeXConnectorContentMapperException at Generic Connector A • Termination of the message sending process	• D5.3, chapter 3.5.1 Evidence Types															
Case 4	This is a negative test case. • Check the generic connector behavior in case the validation of the Trust-Ok-Token or the ASiC-S container signature check or signature authentication check fails. • This can be simulated by deleting the payloads of the message in the holodeck/backend_store folder at gateway B before the generic connector B downloads the message.	• One RelayToREMMDAcceptanceRejection evidence with the EventCode "Rejection" in the receive folder of the national connector simulator A. • ECodeXConnectorSecurityException at Generic Connector B • Termination of the message sending process	• D5.3, chapter 3.5.1 Evidence Types															

1.7.3 Test 03: Message delivery

Test ID	Test name	Testcase	Testfiles	Failure level														
003	Message delivery	Case 1	Any EPO form, A to G	<table border="1"> <thead> <tr> <th>description</th> <th>level</th> </tr> </thead> <tbody> <tr> <td>discrepancy from requirements leads to data loss, program crash or has other serious consequences</td> <td>5</td> </tr> <tr> <td>discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)</td> <td>4</td> </tr> <tr> <td>discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)</td> <td>3</td> </tr> <tr> <td>discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)</td> <td>2</td> </tr> <tr> <td>slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)</td> <td>1</td> </tr> <tr> <td>No failure</td> <td>N/A</td> </tr> </tbody> </table>	description	level	discrepancy from requirements leads to data loss, program crash or has other serious consequences	5	discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4	discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3	discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2	slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1	No failure	N/A
description	level																	
discrepancy from requirements leads to data loss, program crash or has other serious consequences	5																	
discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4																	
discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3																	
discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2																	
slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1																	
No failure	N/A																	
Information	<table border="1"> <tr> <td>Execution frequency</td> <td>once per test case execution</td> </tr> <tr> <td>Involved test persons</td> <td></td> </tr> <tr> <td>Test leader</td> <td>WPS</td> </tr> </table>	Execution frequency	once per test case execution	Involved test persons		Test leader	WPS	Case 2	Any EPO form, A to G									
Execution frequency	once per test case execution																	
Involved test persons																		
Test leader	WPS																	
		Case 3	Any EPO form, A to G															
Pre-requisites	The positive test case (case 1) of Test 002 has been successfully executed (no failure, Failure level = N/A).			No failure														
Goal	"Retrieval" or "NonRetrievalExpiration" and sends it back to the original sender.			N/A														
Level of satisfaction																		
Description Test step by step																		
N°	Preliminary information			Execution														
Test cases	Description test	Expected result / Quality target	Requirement specified in	Name tester	Date	Execution Valid / Invalid	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>								
Case 1	This is a positive test case. • Check the generic connector behavior in case of delivery to the national connector simulator B.	<ul style="list-style-type: none"> The message in the receive folder of the national connector simulator B. One DeliveryNonDeliveryToRecipient evidence with the EventCode "Delivery" in the receive folder of the national connector simulator A. 	• D5.3, chapter 3.5.1 Evidence Types															
Case 2	This is a negative test case. • Check the generic connector behavior in case of failure to deliver the message to the national connector simulator B. • The delivery timeout of the Generic Connector B can be configured in the connector.properties file of the National Connector Simulator B.	<ul style="list-style-type: none"> ECodexConnectorNationalBackendClientException at Generic Connector A Termination of the message sending process DeliveryNonDeliveryToRecipient evidence with the EventCode "DeliveryExpiration" in the receive folder of the national connector simulator A after the delivery timeout at the generic connector B expires. 	<ul style="list-style-type: none"> • D5.3, chapter 3.5.1 Evidence Types • D5.4, chapter 3.2.2 e-Codex Connector National Backend Client 															
Case 3	This is a negative test case. • Check the generic connector behavior in case of a delivery timer timeout. • A delivery timer timeout can be simulated by detaining the message on the wire.	<ul style="list-style-type: none"> DeliveryNonDeliveryToRecipient evidence with the EventCode "DeliveryExpiration" in the receive folder of the national connector simulator A after the delivery timeout at the generic connector B expires. 	• D5.3, chapter 3.5.1 Evidence Types															

I.7.4 Test 04: Message retrieval

Test ID	Test name			Testcase	Testfiles		Failure level			
004	Message retrieval			Case 1	Any EPO form, A to G		description	level		
				Case 2	Any EPO form, A to G		discrepancy from requirements leads to data loss, program crash or has other serious consequences	5		
Information	Execution frequency	one time per test case execution					discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4		
	Involved test persons						discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3		
	Test leader	WP5					discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2		
							slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1		
Pre-requisites	The positive test case (case 1) of Test 003 has been successfully executed (no failure, Failure level = N/A).							No failure	N/A	
Goal	"Retrieval" or "NonRetrievalExpiration" and sends it back to the original sender.									
Level of satisfaction										
Description Test step by step										
N°	Preliminary information			Execution						
Test cases	Description test	Expected result / Quality target	Requirement specified in	Name tester	Date	Execution Valid / Invalid	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>
Case 1	This is a positive test case. • Check the generic connector behavior in case the national system confirms the retrieval of the business message.	• One RetrievalNonRetrievalByRecipient evidence with the EventCode "Retrieval" in the receive folder of the national connector simulator A.	• D5.3, chapter 3.5.1 Evidence Types							
Case 2	This is a negative test case. • Check the generic connector behavior in case of a retrieval timer timeout due to the national system not confirming the retrieval of the message in time. • The retrieval timeout of the Generic Connector B can be configured in the connector.properties file of the National Connector Simulator B.	• One RetrievalNonRetrievalByRecipient evidence with the EventCode "NonRetrievalExpiration" in the receive folder of national connector simulator A after the retrieval timeout at the generic connector B expires.	• D5.3, chapter 3.5.1 Evidence Types							

I.7.5 Test 05: Evidence message failure

Test ID	Test name		Testcase	Testfiles	Failure level					
005	Evidence message failure		Case 1	Any EPO form, A to G	description	level				
			Case 2	Any EPO form, A to G						
Information	Execution frequency	one time per test case execution			discrepancy from requirements leads to data loss, program crash or has other serious consequences	5				
	Involved test persons				discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4				
	Test leader	WP5			discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3				
					discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2				
Pre-requisites	The positive test case (case 1) of Test 001 has been successfully executed (no failure, Failure level = N/A).				slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1				
Goal	"Rejection" and sends it back to the original sender if it does not receive a RelayToREMMDAcceptanceRejection				No failure	N/A				
Level of satisfaction										
Description Test step by step										
N°	Preliminary information			Execution						
Test cases	Description test	Expected result / Quality target	Requirement specified in	Name tester	Date	Execution Valid / Invalid	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>
Case 1	This is a negative test case. • Check the generic connector behavior in case the generic connector A fails to download the RelayToREMMDAcceptanceRejection evidence message from gateway A. • This can be simulated by stopping the gateway A so that the generic connector cannot connect to it. • The relay timeout of the Generic Connector A can be configured in the connector.properties file of the National Connector Simulator A.	• ECodexConnectorGatewayWebserviceClientException at Generic Connector A • One RelayToREMMDAcceptanceRejection evidence with the EventCode "Rejection" in the receive folder of the national connector simulator A after the relay timeout at the generic connector A expires. • <i>Under discussion: The requirements may be updated to expect a RelayToREMMDFailure evidence from the generic connector A with the EventCode "DeliveryExpiration" instead of a RelayToREMMDAcceptanceRejection evidence.</i>	• D5.3, chapter 3.5.1 Evidence Types							
Case 2	This is a negative test case. • Check the generic connector behavior in case the relay timer at generic connector A expires due to non-reception of the RelayToREMMDAcceptanceRejection evidence from the generic connector B. • A relay timer timeout can be simulated by detaining the message on the wire.	• One RelayToREMMDAcceptanceRejection evidence with the EventCode "Rejection" in the receive folder of the national connector simulator A after the relay timeout at the generic connector A expires. • <i>Under discussion: The requirements may be updated to expect a RelayToREMMDFailure evidence from the generic connector A with the EventCode "DeliveryExpiration" instead of a RelayToREMMDAcceptanceRejection evidence.</i>	• D5.3, chapter 3.5.1 Evidence Types							

I.7.6 Resource and artefacts

Test resource or observable artefact	Type	Generated by	Test	
Signed PDF business document	Test resource	Tester	Precondition	
Unsigned PDF business document	Test resource	Tester	Precondition	
SubmissionAcceptanceRejection • with EventCode "Acceptance"	Evidence	Generic Connector A	Test 001	
SubmissionAcceptanceRejection • with EventCode "Rejection"	Evidence	Generic Connector A	Test 001	
RelayToREMMDFailure • with EventCode "DeliveryExpiration"	Evidence	Generic Connector A	Test 002	<i>Under discussion:</i> • May replace the RelayToREMMDAcceptanceRejection evidence in Test 002 / Case 2
RelayToREMMDAcceptanceRejection • with EventCode "Acceptance"	Evidence	Generic Connector B	Test 002	
RelayToREMMDAcceptanceRejection • with EventCode "Rejection"	Evidence	Generic Connector A/B	Test 002, Test 005	<i>Under discussion:</i> • Generated by Generic Connector B only • Test 002 only
DeliveryNonDeliveryToRecipient evidence • with EventCode "Delivery"	Evidence	Generic Connector B	Test 003	
DeliveryNonDeliveryToRecipient evidence • with EventCode "DeliveryExpiration"	Evidence	Generic Connector B	Test 003	
RetrievalNonRetrievalByRecipient evidence • with EventCode "Retrieval"	Evidence	Generic Connector B	Test 004	
RetrievalNonRetrievalByRecipient evidence • with EventCode "NonRetrievalExpiration"	Evidence	Generic Connector B	Test 004	
ECodexConnectorNationalBackendClientException	Exception	National Connector Simulator A/B	Test 001, Test 003	
ECodexConnectorGatewayWebserviceClientException	Exception	Gateway A/B	Test 001, 002 and 005	
ECodexConnectorSecurityException	Exception	Generic Connector A/B	Test 001, Test 002	
ECodexConnectorContentMapperException	Exception	Generic Connector A/B	Test 001, Test 002	

Appendix II – Results of the Gateway2Gateway test phase

This Annex contains the outcomes obtained during the testing phase as-is.

Some aspects (reflected in the outcomes) need to be highlighted:

- The GW2GW Testing phase has been conducted by Austria, Germany, Estonia, Italy and Spain.
- Austria, Estonia, Germany and Italy had configured their own gateway for the use of http. Spain had configured its gateway just for the use of https.
- The certificates used are test certificates that come with the standard Apache Tomcat distribution.
- No specific test documents had been provided.

Test ID 01-01	Test name GW A to GW B with example certificates delivered with Holodeck								
Information	<table border="1"> <tr> <td>Number of test</td> <td>1/2</td> </tr> <tr> <td>Involved countries</td> <td>A: Germany B: Italy</td> </tr> <tr> <td>Number of countries involved</td> <td></td> </tr> <tr> <td>Test leader</td> <td>WP5</td> </tr> </table>	Number of test	1/2	Involved countries	A: Germany B: Italy	Number of countries involved		Test leader	WP5
Number of test	1/2								
Involved countries	A: Germany B: Italy								
Number of countries involved									
Test leader	WP5								
Pre-requisites	Generic Gateway version installed. Test environment created with the TestClient provided by WP5.								
Goal	The message is sent and received unmodified and without any problems								
Level of satisfaction									

Failure level	
description	level
discrepancy from requirements leads to data loss, program crash or has other serious consequences	5
discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4
discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3
discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2
slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1
No failure	N/A

Description Test step by step

N° 01	Preliminary information				Execution		Assessment				
	Test steps	Description test	Expected result / Quality target	Checks	Comments	Name tester	Date	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>
Step 1	Gateway in Italy sends message to Gateway Germany	the message files are out the corresponding in directories of the backend interface A	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB			DE	25/01/2013	Successful	N/A	High	
Step 2	Gateway in Germany receives message	the message files are in the corresponding in directories of the backend interface B	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB			DE	25/01/2013	Successful	N/A	High	
Step 3	Gateway in Germany sends message to Gateway in Italy	the message files are in the corresponding out directories of the backend interface B	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB			DE	25/01/2013	Successful	N/A	High	
Step 4	Gateway in Italy receives message	the message files are in the corresponding in directories of the backend interface A	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB			DE	25/01/2013	Successful	N/A	High	

Goal

Level of satisfaction

Description Test step by step

N° 01	Preliminary information				Execution		Assessment			
Test steps	Description test	Expected result / Quality target	Checks	Comments	Name tester	Date	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>
Step 1	Gateway in Italy sends message to Gateway Germany	the message files are out the corresponding in directories of the backend interface A	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB	After changes to security-config successful	DE	25/01/2013	Successful	N/A	High	
Step 2	Gateway in Germany receives message	the message files are in the corresponding in directories of the backend interface B	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013		Successful	N/A	
Step 3	Gateway in Germany sends message to Gateway in Italy	the message files are in the corresponding out directories of the backend interface B	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	
Step 4	Gateway in Italy receives message	the message files are in the corresponding in directories of the backend interface A	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	

Test ID 01-01	Test name GW A to GW B with example certificates delivered with Holodeck								
Information	<table border="1"> <tr> <td>Number of test</td> <td>1/2</td> </tr> <tr> <td>Involved countries</td> <td>A: Germany B: Austria</td> </tr> <tr> <td>Number of countries involved</td> <td></td> </tr> <tr> <td>Test leader</td> <td>WP5</td> </tr> </table>	Number of test	1/2	Involved countries	A: Germany B: Austria	Number of countries involved		Test leader	WP5
Number of test	1/2								
Involved countries	A: Germany B: Austria								
Number of countries involved									
Test leader	WP5								
Pre-requisites	Generic Gateway version installed. Test environment created with the TestClient provided by WP5.								
Goal	The message is sent and received unmodified and without any problems								
Level of satisfaction									

Failure level	
description	level
discrepancy from requirements leads to data loss, program crash or has other serious consequences	5
discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4
discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3
discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2
slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1
No failure	N/A

Description Test step by step

N° 01	Preliminary information				Execution		Assessment			
	Description test	Expected result / Quality target	Checks	Comments	Name tester	Date	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>
Step 1	Gateway in Austria sends message to Gateway Germany	the message files are out the corresponding in directories of the backend interface A	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	
Step 2	Gateway in Germany receives message	the message files are in the corresponding in directories of the backend interface B	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	
Step 3	Gateway in Germany sends message to Gateway in Austria	the message files are in the corresponding out directories of the backend interface B	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	
Step 4	Gateway in Austria receives message	the message files are in the corresponding in directories of the backend interface A	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	

Test ID	Test name								
01-01	GW A to GW B with example certificates delivered with Holodeck								
Information	<table border="1"> <tr> <td>Number of test</td> <td>1/2</td> </tr> <tr> <td>Involved countries</td> <td>A: Germany B: Austria</td> </tr> <tr> <td>Number of countries involved</td> <td></td> </tr> <tr> <td>Test leader</td> <td>WP5</td> </tr> </table>	Number of test	1/2	Involved countries	A: Germany B: Austria	Number of countries involved		Test leader	WP5
Number of test	1/2								
Involved countries	A: Germany B: Austria								
Number of countries involved									
Test leader	WP5								
Pre-requisites	<table border="1"> <tr> <td>Generic Gateway version installed. Test environment created with the TestClient provided by WP5.</td> </tr> </table>	Generic Gateway version installed. Test environment created with the TestClient provided by WP5.							
Generic Gateway version installed. Test environment created with the TestClient provided by WP5.									
Goal	The message is sent and received unmodified and without any problems								
Level of satisfaction									

Failure level	
description	level
discrepancy from requirements leads to data loss, program crash or has other serious consequences	5
discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4
discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3
discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2
slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1
No failure	N/A

Description Test step by step

N° 01	Preliminary information				Execution		Assessment			
	Description test	Expected result / Quality target	Checks	Comments	Name tester	Date	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>
Step 1	Gateway in Austria sends message to Gateway Germany	the message files are out the corresponding in directories of the backend interface A	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	
Step 2	Gateway in Germany receives message	the message files are in the corresponding in directories of the backend interface B	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	
Step 3	Gateway in Germany sends message to Gateway in Austria	the message files are in the corresponding out directories of the backend interface B	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	
Step 4	Gateway in Austria receives message	the message files are in the corresponding in directories of the backend interface A	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	

Test ID 02-01	Test name GW A to GW B with MS specific certificates								
Information	<table border="1"> <tr> <td>Number of test</td> <td>1/X</td> </tr> <tr> <td>Involved countries</td> <td>A: Germany B: Austria</td> </tr> <tr> <td>Number of countries involved</td> <td></td> </tr> <tr> <td>Test leader</td> <td>WP5</td> </tr> </table>	Number of test	1/X	Involved countries	A: Germany B: Austria	Number of countries involved		Test leader	WP5
Number of test	1/X								
Involved countries	A: Germany B: Austria								
Number of countries involved									
Test leader	WP5								
Pre-requisites	Gateway installed. Test environment created with the TestClient provided by WP5. P-Mode configurations in the Gateway installed Truststore (client.jks) containing the certificates from AT, DE, EE, IT and ES installed. Private key added or replaced to the server.jks file under the alias client_<MS>.								
Goal	The message is sent and received unmodified and without any problems								
Level of satisfaction									

Failure level	
description	level
discrepancy from requirements leads to data loss, program crash or has other serious consequences	5
discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4
discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3
discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2
slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1
No failure	N/A

Description Test step by step

N° 01	Preliminary information				Execution		Assessment			
	Description test	Expected result / Quality target	Checks	Comments	Name tester	Date	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>
Step 1	Gateway in Austria sends message to Gateway Germany	the message files are out the corresponding in directories of the backend interface A	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013		N/A	High	
Step 2	Gateway in Germany receives message	the message files are in the corresponding in directories of the backend interface B	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	
Step 3	Gateway in Germany sends message to Gateway in Austria	the message files are in the corresponding out directories of the backend interface B	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB	After changes to security-config succesf	DE	25/01/2013	Successful	N/A	High	
Step 4	Gateway in Austria receives message	the message files are in the corresponding in directories of the backend interface A	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB		DE	25/01/2013	Successful	N/A	High	

Test ID	Test name	
01-01	GW A to GW B with example certificates delivered with Holodeck	
Information	Number of test	1/2
	Involved countries	A: Austria B: Italy
	Number of countries involved	
	Test leader	WP5
Pre-requisites	Generic Gateway version installed. Test environment created with the TestClient provided by WP5.	
Goal	The message is sent and received unmodified and without any problems	
Level of satisfaction		

Failure level	
description	level
discrepancy from requirements leads to data loss, program crash or has other serious consequences	5
discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4
discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3
discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2
slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1
No failure	N/A

Description Test step by step

N° 01	Preliminary information				Execution		Assessment				
	Test steps	Description test	Expected result / Quality target	Checks	Comments	Name tester	Date	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>
Step 1	Gateway in Austria sends message to Gateway Italy	the message files are out the corresponding in directories of the backend interface A	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB				24/01/2013	Successful	N/A High	High	Switch to Test O2-01
Step 2	Gateway in Italy receives message	the message files are in the corresponding in directories of the backend interface B	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB				24/01/2013	Successful	N/A High	High	Switch to Test O2-01
Step 3	Gateway in Italy sends message to Gateway in Austria	the message files are in the corresponding out directories of the backend interface B	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB				25/01/2013	Error message	4 Low	Low	Change Pmode for Austrain Gateway from HTTPS to HTTP
Step 4	Gateway in Austria receives message	the message files are in the corresponding in directories of the backend interface A	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB				25/01/2013	No reception and no entry in DB	4 Low	Low	Redo test

Please verify and specify the actions to correct the error

Test ID 01-02	Test name GW A to GW B with example certificates delivered with Holodeck								
Information	<table border="1"> <tr> <td>Number of test</td> <td>2/2</td> </tr> <tr> <td>Involved countries</td> <td>A: Austria B: Italy</td> </tr> <tr> <td>Number of countries involved</td> <td></td> </tr> <tr> <td>Test leader</td> <td>WP5</td> </tr> </table>	Number of test	2/2	Involved countries	A: Austria B: Italy	Number of countries involved		Test leader	WP5
Number of test	2/2								
Involved countries	A: Austria B: Italy								
Number of countries involved									
Test leader	WP5								
Pre-requisites	Generic Gateway version installed. Test environment created with the TestClient provided by WP5.								
Goal	The message is sent and received unmodified and without any problems								
Level of satisfaction									

Failure level	level
discrepancy from requirements leads to data loss, program crash or has other serious consequences	5
discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4
discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3
discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2
slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1
No failure	N/A

Description Test step by step

N° 02	Preliminary information				Execution		Assessment			
	Description test	Expected result / Quality target	Checks	Comments	Name tester	Date	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>
Step 1	Gateway in Austria sends message to Gateway Italy	the message files are out the corresponding in directories of the backend interface A	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB		N/A	N/A	N/A			N/A
Step 2	Gateway in Italy receives message	the message files are in the corresponding in directories of the backend interface B	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB		N/A	N/A	N/A			N/A
Step 3	Gateway in Italy sends message to Gateway in Austria	the message files are in the corresponding out directories of the backend interface B	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB	Change Pmode for Austrain Gateway from HTTPS to HTTP		25/01/2013	Successful	N/A	High	Go to 02-01
Step 4	Gateway in Austria receives message	the message files are in the corresponding in directories of the backend interface A	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB			25/01/2013	Successful	N/A	High	Go to 02-01

Test ID 01-01	Test name GW A to GW B with example certificates delivered with Holodeck								
Information	<table border="1"> <tr> <td>Number of test</td> <td>1/2</td> </tr> <tr> <td>Involved countries</td> <td>A: Austria B: Spain</td> </tr> <tr> <td>Number of countries involved</td> <td></td> </tr> <tr> <td>Test leader</td> <td>WP5</td> </tr> </table>	Number of test	1/2	Involved countries	A: Austria B: Spain	Number of countries involved		Test leader	WP5
Number of test	1/2								
Involved countries	A: Austria B: Spain								
Number of countries involved									
Test leader	WP5								
Pre-requisites	Generic Gateway version installed. Test environment created with the TestClient provided by WP5.								
Goal	The message is sent and received unmodified and without any problems								
Level of satisfaction									

Failure level	
description	level
discrepancy from requirements leads to data loss, program crash or has other serious consequences	5
discrepancy from requirements that has grave impact on tested function (e.g. part of a function is not or wrongly processed)	4
discrepancy from requirements that is a massive obstacle in the processing of data (e.g. missing or incorrect log data)	3
discrepancy from requirements, that makes processing of function more difficult (e.g. false scroll position of a table)	2
slight discrepancy, the requirements are fulfilled, but the tester sees room for improvement (e.g. performance could be faster)	1
No failure	N/A

Description Test step by step

N° 01	Preliminary information				Execution		Assessment			
	Description test	Expected result / Quality target	Checks	Comments	Name tester	Date	Findings <i>Description of the reactions of the system during the test</i>	Failure level	Status against target <i>High, medium, low</i>	Quality evaluation <i>Description of what the next step should be e.g. "continue", "change xxx and retry", "end test and move to next step"</i>
Step 1	Gateway in Austria sends message to Gateway Spain	the message files are out the corresponding in directories of the backend interface A	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB		AT	06/02/2013	Successful	N/A	High	
Step 2	Gateway in Spain receives message	the message files are in the corresponding in directories of the backend interface B	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB		AT	06/02/2013	Successful	N/A	High	
Step 3	Gateway in Spain sends message to Gateway in Austria	the message files are in the corresponding out directories of the backend interface B	DB entries for the sent messages in the holodeck DB Corresponding log entries in the holodeck DB		AT	06/02/2013	Successful	N/A	High	
Step 4	Gateway in Austria receives message	the message files are in the corresponding in directories of the backend interface A	DB entries for the received messages in the holodeck DB Corresponding log entries in the holodeck DB		AT	06/02/2013	Successful	N/A	High	